CLAIMS

1. A semiconductive film formed from a resin composition comprising poly(ether ether ketone) and a conductive filler in a proportion of 5 to 40 parts by weight per 100 parts by weight of the poly(ether ether ketone), wherein the semiconductive film has the following properties (a) to (c):

(a) the average value of its thickness being within a range of 30 to 250 μm, and the maximum value of the thickness being within a range of 1 to 1.3 times as much as the minimum value thereof,

(b) the average value of its volume resistivity being within a range of 1.0×10^2 to 1.0×10^{14} Ωcm, and the maximum value of the volume resistivity being within a range of 1 to 30 times as much as the minimum value thereof, and

(c) the number of reciprocating folds required up to cutting as determined by using a strip-like specimen having a width of 15 mm under conditions of a chuck bending angle of 135° right and left, a folding speed of 175 c/s and a load of 9.8 N per 100 μm of a thickness in accordance with "Testing Method for Folding Endurance by MIT Tester" as prescribed in JIS P 8115 being at least 5,000 times.

2. The semiconductive film according to claim 1, which further has property (d) that the tensile elongation

at break in its any direction is at least 10% as measured by using a specimen having a width of 10 mm and a length of 100 mm under conditions of a crosshead speed of 50 mm/min and an interchuck interval of 50 mm by means of a tensile tester in accordance with JIS K 7113.

3. The semiconductive film according to claim 1, which further has property (e) that the modulus in tension in its any direction is at least 1.8 GPa as measured by using a specimen having a width of 10 mm and a length of 100 mm under conditions of a crosshead speed of 50 mm/min and an interchuck interval of 50 mm by means of a tensile tester in accordance with JIS K 7113.

4. The semiconductive film according to claim 1, which further has property (f) that a ratio (M/T) of tear strength (M) in the extruding direction (MD) of the film to tear strength (T) in a direction (TD) perpendicular to the extruding direction as determined in accordance with JIS K 6252 is within a range of 2/3 to 3/2.

5. The semiconductive film according to claim 1, which further has property (g) that an endothermic peak indicating a crystallization endotherm ΔH of at least 10 J/g is detected within a range of 150 to 200°C by thermal analysis by means of a differential scanning calorimeter (DSC).

6. The semiconductive film according to claim 1, wherein the conductive filler (B) is conductive carbon black.

7. The semiconductive film according to claim 6, wherein the conductive carbon black has an DBP oil absorption within a range of 30 to 700 mg/100 g.

8. The semiconductive film according to claim 6, wherein the conductive carbon black has a volatile matter content of at most 1.5% by weight.

9. The semiconductive film according to claim 6, wherein the conductive carbon black has a volume resistivity lower than 10^2 Ωcm.

10. The semiconductive film according to claim 6, wherein the conductive carbon black is acetylene black or oil furnace black or a mixture thereof.

11. A charge controlling member formed with the semiconductive film according to any one of claims 1 to 10.

12. The charge controlling member according to claim 11, which is a semiconductive covered roller obtained by covering a roller base with a tube formed from the semiconductive film.

13. The charge controlling member according to claim 11, which is a semiconductive belt formed from the semiconductive film.

14. A process for producing a semiconductive film, which comprises feeding a resin composition comprising poly(ether ether ketone) and a conductive filler in a proportion of 5 to 40 parts by weight per 100 parts by weight of the poly(ether ether ketone) to an extruder, melt-extruding the resin composition in the form of a film from a T-die, the lip clearance of which has been controlled to at most 1.0 mm, while controlling the temperature of the resin composition within a range of 350 to 410°C, and then bringing the film in the molten state into contact with a cooling roll controlled to a temperature within a range of 60 to 120°C to cool and solidify the film.

15. The production process according to claim 14, wherein the lip clearance of the T-die is controlled to at most 0.7 mm.

16. The production process according to claim 14, which provides, after the cooling and solidification, a semiconductive film having the following properties (a) to (c):

(a) the average value of its thickness being within a

range of 30 to 250 μm, and the maximum value of the thickness being within a range of 1 to 1.3 times as much as the minimum value thereof,

(b) the average value of its volume resistivity being within a range of 1.0×10^2 to 1.0×10^{14} Ωcm, and the maximum value of the volume resistivity being within a range of 1 to 30 times as much as the minimum value thereof, and

(c) the number of reciprocating folds required up to cutting as determined by under conditions of a chuck bending angle of 135° right and left, a folding speed of 175 c/s and a load of 9.8 N per 100 μm of a thickness in accordance with "Testing Method for Folding Endurance by MIT Tester" as prescribed in JIS P 8115 being at least 5,000 times.

17. A process for producing a semiconductive film, which comprises feeding a resin composition comprising poly(ether ether ketone) and a conductive filler in a proportion of 5 to 40 parts by weight per 100 parts by weight of the poly(ether ether ketone) to an extruder, melt-extruding the resin composition in the form of a tubular film from a ring die, the lip clearance of which has been controlled to at most 1.0 mm, while controlling the temperature of the resin composition within a range of 350 to 410°C, and then cooling and solidifying the tubular film in the molten state through a cooling mandrel

controlled to a temperature within a range of 60 to 120°C.

18. The production process according to claim 17, wherein the lip clearance of the ring die is controlled to at most 0.7 mm.

19. The production process according to claim 17, which provides, after the cooling and solidification, a semiconductive film having the following properties (a) to (c):

(a) the average value of its thickness being within a range of 30 to 250 μm, and the maximum value of the thickness being within a range of 1 to 1.3 times as much as the minimum value thereof,

(b) the average value of its volume resistivity being within a range of 1.0×10^2 to 1.0×10^{14} Ωcm, and the maximum value of the volume resistivity being within a range of 1 to 30 times as much as the minimum value thereof, and

(c) the number of reciprocating folds required up to cutting as determined under conditions of a chuck bending angle of 135° right and left, a folding speed of 175 c/s and a load of 9.8 N per 100 μm of a thickness in accordance with "Testing Method for Folding Endurance by MIT Tester" as prescribed in JIS P 8115 being at least 5,000 times.